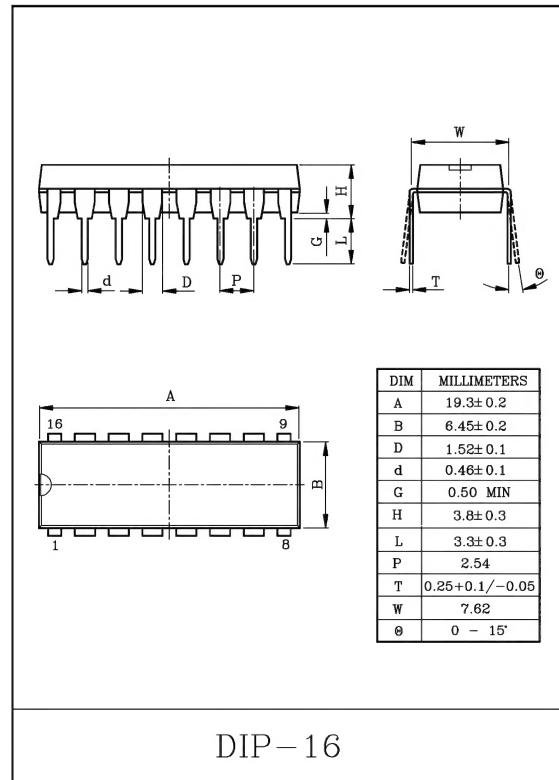


## AM/FM IF SYSTEM IC

The KIA6040P is AM/FM IF system IC designed for portable use. As compared with conventional IC, this IC is greatly improved in external parts counts and electrical characteristics, especially tweet and overload distortion.

## FEATURES:

- Low Supply Current, AM:7mA, FM : 10mA(Typ.).
- Few External Parts.
- Excellent Tweet.
- Low Overload Distortion.
- Tuning Indicator LED Driving Capability.  
:  $I_{LAMP}=10mA$ (Typ.)
- Built-in AM/FM Mode Switch.
- Common Output for AM/FM.
- Operating Supply Voltage Range :  $V_{CC(\text{opr})}=3\sim 8V$ ( $T_a=25^\circ\text{C}$ ).

MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ )

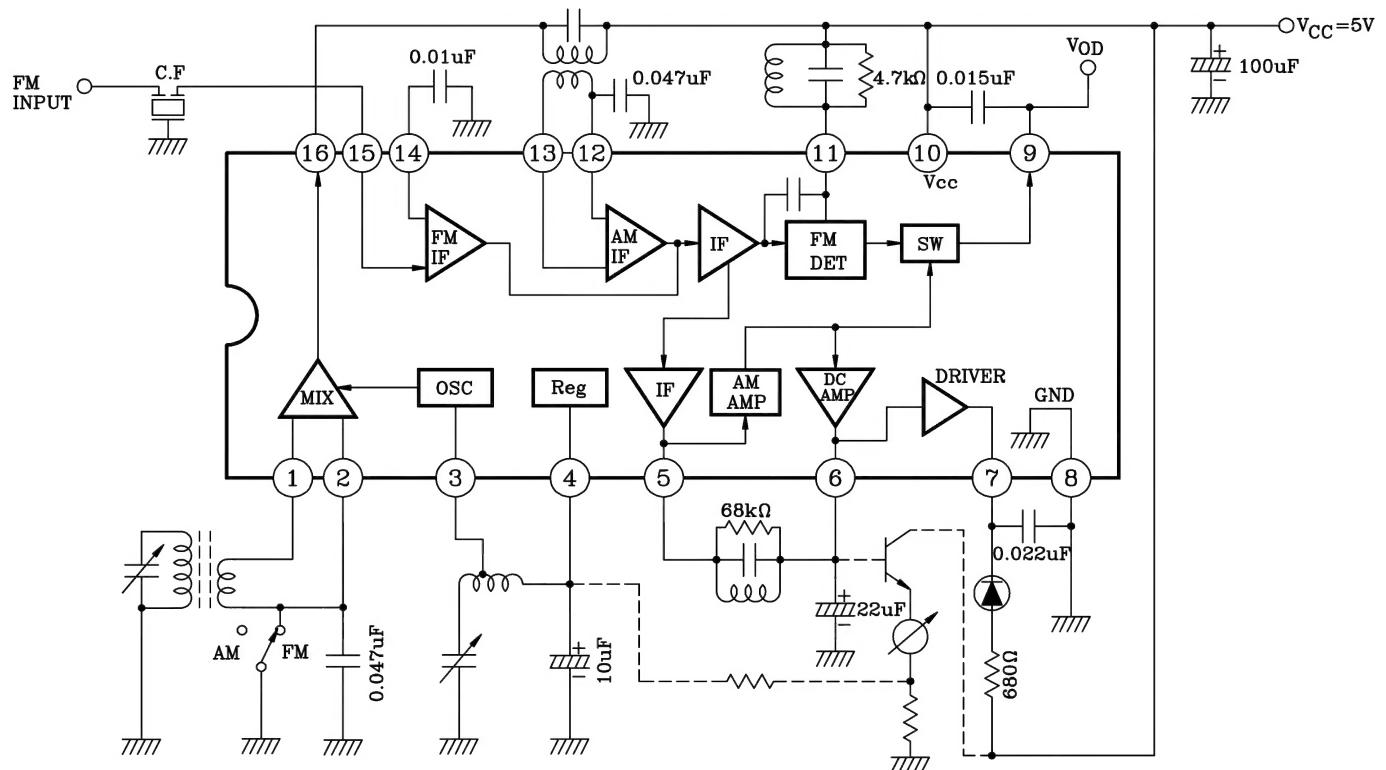
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	$V_{CC}$	8	V
Lamp Current	$I_{LAMP}$	10	mA
Power Dissipation (Note)	$P_D$	750	mW
Operating Temperature	$T_{opr}$	-25~75	°C
Storage Temperature	$T_{stg}$	-55~150	°C

Note : Derated above  $T_a=25^\circ\text{C}$  in the Proportion of 6mW/°C for KIA6040P.

DIP-16

# KIA6040P

## BLOCK DIAGRAM



Note : The dot line denotes a tuning meter application.

## ELECTRICAL CHARACTERISTICS

### 1. DC CHARACTERISTICS (V<sub>CC</sub>=5V, Terminal voltage at no signal)

PIN NO.	ITEM	SYMBOL	Typ.		UNIT
			AM	FM	
1	(AM MIX IN)	V <sub>1</sub>	1.5	0	V
2	(AM MIX BYPASS)	V <sub>2</sub>	1.5	0	V
3	(AM OSC)	V <sub>3</sub>	2.3	2.3	V
4	(Reg)	V <sub>4</sub>	2.3	2.3	V
5	(AM IF OUT)	V <sub>5</sub>	1.0	0.9	V
6	(Meter OUT)	V <sub>6</sub>	1.0	0.9	V
7	(LED)	V <sub>7</sub>	-	-	V
8	(GND)	V <sub>8</sub>	0	0	V
9	(DET OUT)	V <sub>19</sub>	1.4	1.5	V
10	(V <sub>CC</sub> )	V <sub>10</sub>	5.0	5.0	V
11	(FM DET)	V <sub>11</sub>	5.0	5.0	V
12	(AM IF BYPASS)	V <sub>12</sub>	1.5	1.5	V
13	(AM IF IN)	V <sub>13</sub>	1.5	1.5	V
14	(FM IF BYPASS)	V <sub>14</sub>	1.5	1.5	V
15	(FM IF IN)	V <sub>15</sub>	1.5	1.5	V
16	(AM MIX OUT)	V <sub>16</sub>	5.0	5.0	V

# KIA6040P

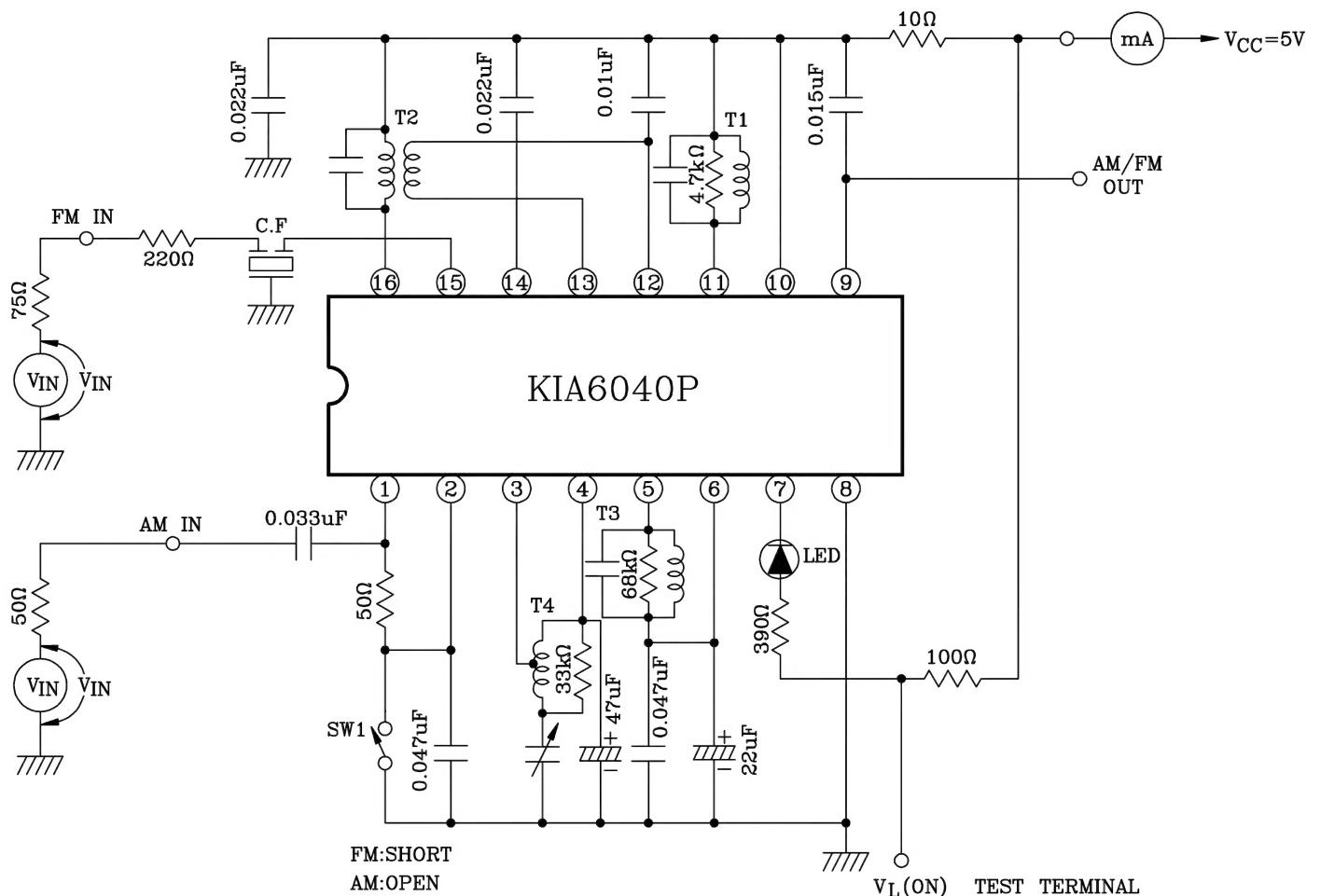
## 2. AC CHARACTERISTICS

( Ta=25°C, Vcc=5V, FM: f=10.7kHz,  $\Delta f=\pm 22.5\text{kHz}$  dev., fm=400Hz  
 AM: f=1MHz, Mod=30%, fm=400Hz )

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Supply Current	I <sub>CC</sub> (1)	1	FM V <sub>IN</sub> =0	-	10	15	mA	
	I <sub>CC</sub> (2)		AM V <sub>IN</sub> =0	-	7	10		
FM	Input Limiting Voltage	V <sub>IN(dim)</sub>	1	-3dB Limiting	-	40	46	dB $\mu$
	Recovered Output Voltage	V <sub>OD</sub>	1	V <sub>IN</sub> =66dB $\mu$	57	85	114	mV <sub>rms</sub>
	Signal to Noise Ratio	S/N	1	V <sub>IN</sub> =80dB $\mu$	-	65	-	dB $\mu$
	Total Harmonic Distortion	THD	1	V <sub>IN</sub> =80dB $\mu$	-	0.05	-	%
	AM Rejection Ratio	AMR	1	V <sub>IN</sub> =80dB $\mu$	-	38	-	dB $\mu$
	Meter Drive Voltage	V <sub>M</sub>	1	V <sub>IN</sub> =100dB $\mu$	1.6	1.75	1.9	V
	Lamp ON Sensitivity	V <sub>L</sub>	1	I <sub>L</sub> =1mA	-	46	52	dB
AM	Gain	G <sub>V</sub>	1	V <sub>IN</sub> =26dB $\mu$	20	30	60	mV <sub>rms</sub>
	Recovered Output Voltage	V <sub>OD</sub>	1	V <sub>IN</sub> =60dB $\mu$	65	95	125	mV <sub>rms</sub>
	Signal to Noise Ratio	S/N	1	V <sub>IN</sub> =60dB $\mu$	-	47	-	dB
	Total Harmonic Distortion	THD	1	V <sub>IN</sub> =60dB $\mu$	-	1.0	-	%
	Meter Drive Voltage	V <sub>M</sub>	1	V <sub>IN</sub> =100dB $\mu$	1.6	1.75	1.9	V
	Lamp ON Sensitivity	V <sub>L</sub>	1	I <sub>L</sub> =1mA	-	32	-	dB $\mu$
	Local OSC Stop Voltage	V <sub>stop</sub>	1	R <sub>DUMP</sub> = $\infty$	-	1.5	-	V
Pin ⑨ Output Resistance		R <sub>09</sub>	-	f=1kHz	-	3.0	-	k $\Omega$

# KIA6040P

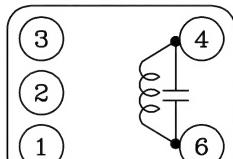
## TEST CIRCUIT



# KIA6040P

## COIL DATA (TEST CIRCUIT)

### T<sub>1</sub> FM DETECTOR COIL

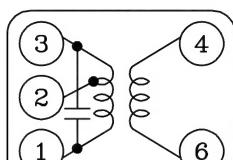


(BOTTOM VIEW)

C <sub>0</sub> (pF)	f (MHz)	Q <sub>0</sub>	TURNS
4-6		4-6	4-6
47	10.7	150	14

① : KSC0902  
② : 44M-933A or  
SIMILAR  
WIRE : 0.12mm  $\phi$  UEW

### T<sub>2</sub> AM IFT (MIX OUT)

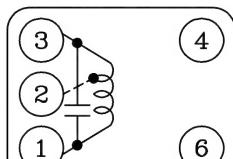


(BOTTOM VIEW)

C <sub>0</sub> (pF)	f (MHz)	Q <sub>0</sub>	TURNS		
			4-6	1-2	2-3
1-3	455	150	90	62	8

① : KS M308  
② : 48T-423 or SIMILAR  
WIRE : 0.07mm  $\phi$  UEW

### T<sub>3</sub> AM IFT (DET)

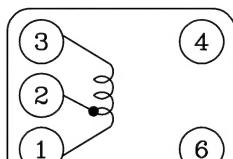


(BOTTOM VIEW)

C <sub>0</sub> (pF)	f (MHz)	Q <sub>0</sub>	TURNS	
			1-3	1-
180	455	110		152

① : KSAD106  
② : 44M-935C or  
SIMILAR  
WIRE : 0.07mm  $\phi$  UEW

### T<sub>4</sub> MW OSC



(BOTTOM VIEW)

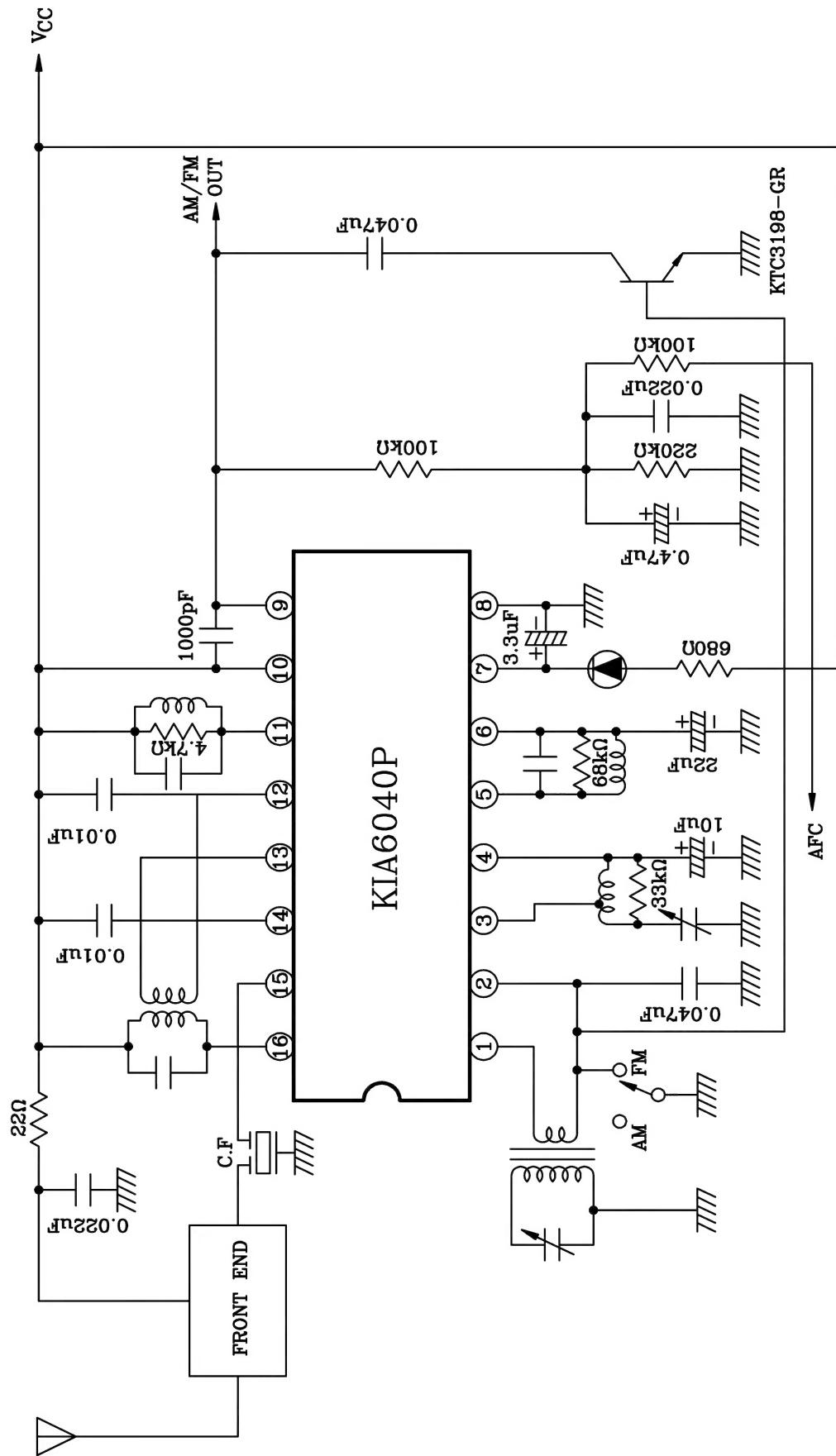
f (kHz)	L( $\mu$ H)	Q <sub>0</sub>	TURNS	
			1-3	1-2
796	288	120	13	75

① : KSA0408  
② : 0137-262 or SIMILAR  
WIRE : 0.08mm  $\phi$  UEW

NOTE : ① : KWANG SUNG ELECTRIC CO., LTD.  
(Tel : 02)716-0034)  
② : SUMIDA ELECTRIC CO., LTD.

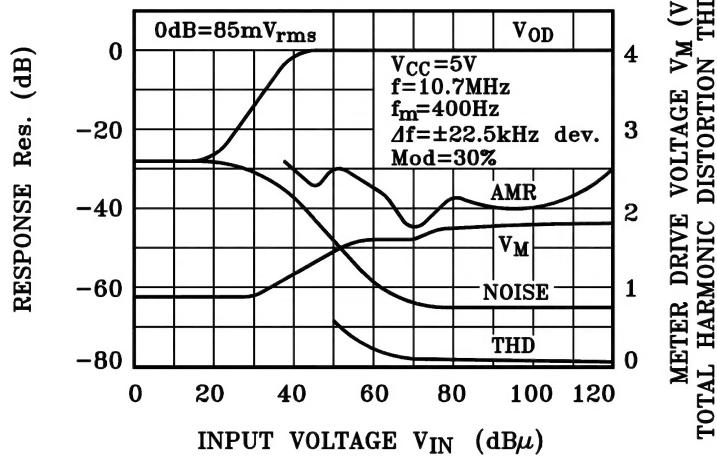
# KIA6040P

## APPLICATION CIRCUIT

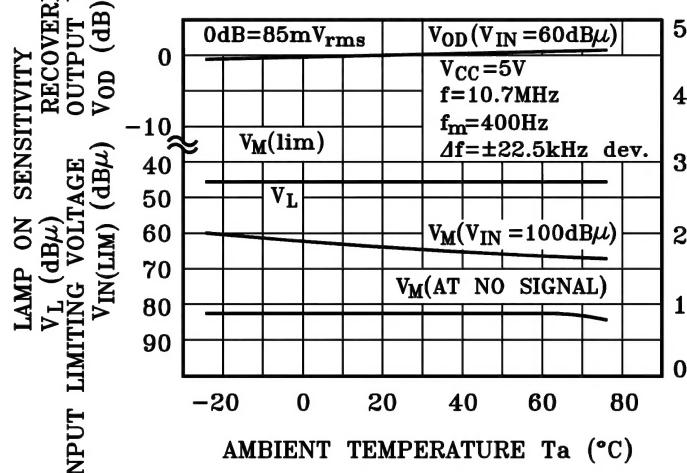


# KIA6040P

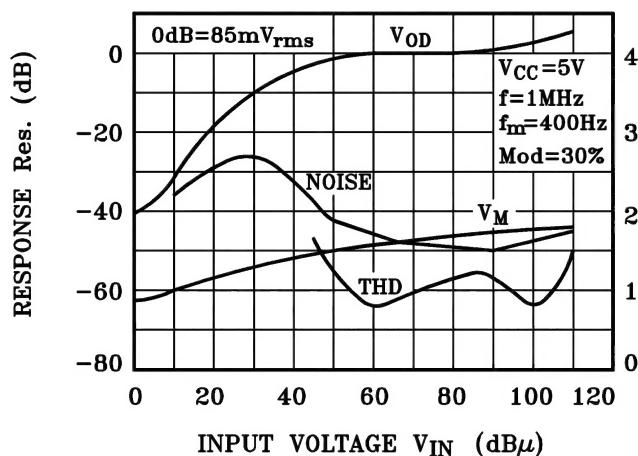
FM  $V_{OD}$ , AMR, S/N, THD,  $V_M - V_{IN}$



FM  $V_{OD}$ ,  $V_{IN}$  (lim),  $V_L$ ,  $V_M - Ta$



AM  $V_{OD}$ , S/N, THD,  $V_M - V_{IN}$



METER DRIVE VOLTAGE  $V_M$  (V)  
TOTAL HARMONIC DISTORTION THD (%)